metric

The panel on which this text is printed has a size of DIN A4 (297 mm x 210 mm).

DIN A paper size system	
DIN size	ratio in mm
DIN A0	841 x 1189
DIN A1	594 x 841
DIN A2	420 x 594
DIN A3	297 x 420
DIN A4	210 x 297
DIN A5	148 x 210
DIN A6	105 x 148
DIN A7	74 x 105
DIN A8	52 x 74

DIN A6 | DIN A6

DIN A6

DIN A8 | DIN A8

DIN A8 | DIN A8

DIN A6 + DIN A6 = DIN A5
DIN A8 + DIN A8 = DIN A7

297 mm (12)

The DIN A paper size system was invented by Dr Walter Porstmann (1886 - 1959), an engineer/mathematician who developed a system of cut paper sizes based on the metric system. For all DIN A formats, the height, divided by the width, is the square root of two (1.1414:2). The advantage of using this formula, as noted by the German scientist Georg Lichtenberg (c. 1786), is that if a sheet with this aspect ratio *½* is horizontally divided into two equal halves, the resulting halves will also have the ½ aspect ratio. The base format, A0, has an area of one square meter. Format A1 is A0 cut into two equal pieces, meaning that A1 is as high as A0 is wide and A1 is half as wide as A0 is high. All smaller A series formats are defined in the same way by cutting the next larger format in the series parallel to its shorter side into two equal pieces. The most common paper size is DIN A4 (210 x 297 mm), used for letterhead and photocopy paper applications.

During the 1920s, the DIN A size system was widely implemented in Germany, with Belgium as the first country to adopt the formats in 1924, followed by the Netherlands (1925), Scandinavia (1930), The Soviet Union (1934), Italy (1939), large number of South American countries (1940), Austria (1947), Japan (1951), India (1957), the UK (1959), Mexico (1965), France (1967), Greece (1970), Australia (1974), Kuwait (1975), etc. The United States and Canada are the only countries in the industrialized world not using the DIN A size system.

The panel on which this text is printed has an aspect ratio of height : height = 1 : 1.414 : 1

or

width : height = 1 : 1.414

or

297 mm x 210 mm

also known as DIN A4.

The International System of Units, universally abbreviated SI (from the French Le Système International d'Unités), is the modern form of the metric system. The SI was officially linked to 1960 by the 11th General Conference on Weights and Measures (CGPM) when it defined the units of length and frequency. The CGPM is the international authority that oversees such determinations of the SI and modifies the SI when necessary to keep the units relevant to current technology.

The CGPM is an intergovernmental organization created by a diplomatic treaty signed in Paris on 20 May 1875 and currently has 55 member states and 27 associate states. The Metre Convention was signed in Paris in 1875 by representatives of 17 nations, including the United States. There are now 57 member states and the Metre Convention, controlling all the major industrialized countries, including the United States, Canada, and Mexico. Under 15 all international agreement are under its sovereignty.

The Metre Convention also created the International Bureau of Weights and Measures (BIPM, Bureau International des Poids et Mesures) and the International Committee for Weights and Measures (CIPM, Comité International des Poids et Mesures). The BIPM, which is headquartered in Sèvres, a suburban city near Paris, France, is the world's most sophisticated laboratory of physical measurements, operated by the 55 member states and 27 associate states, which meet every year under the authority of the CGPM.

The CIPM consists of a delegation from all the member states of the Metre Convention and currently meets every four years. The CIPM CCDW (Consultative Committee for Units) meets every two years to review the work of the different working groups, to consider certain issues, and to prepare for the meeting of the CIPM the following year.

Suggested modifications to the SI are submitted to the CIPM by the CCDW and the former delegates. The CIPM may vote on the issue in advance, seeking instructions and recommendations from its parent body, the CGPM, or it may wait for the next meeting and vote on the issue at the next session of the CGPM. The CGPM is the ultimate authority, and it is the only organization that can change the SI. The CGPM meets every four years, usually with a delegation from each member state. The Conference Committee for Units (CCU) Committee (Comité des Unités), which meets once every 4 years, is responsible for the development of the SI. The CCU is made up of the CIPM, CCDW, and the CIPM and meets during each day the SI.

Source: Internet Centre of Standards and Technology, Gaithersburg, MD, USA (pictures).

Capacity

gallon (Imperial)	gallon USA	quart (Imperial)	quart USA	pint (Imperial)	pint USA	cup (Imperial)	cup USA	gill (Imperial)	gill USA	fluid ounce (Imperial)	fluid ounce USA	tablespoon (Imperial)	tablespoon USA	teaspoon (Imperial)	teaspoon USA	cubic inch	ml	l
0.833	1	3.331	4	6.661	8	13.324	16	26.662	32	122.979	128	213.164	256			231	3,785.4	3.785
		0.833	1	1.665	2	3.331	4	6.661	8	30.745	32	53.291	64			57.750	946.35	0.946
				0.833	1	1.665	2	3.331	4	15.372	16	26.645	32			28.875	473.176	0.473
						0.833	1	1.667	2	7.686	8	13.323	16	39.968	48	14.438	236.590	0.237
								0.833	1	3.384	4	6.661	8	19.984	24	7.219	118.294	0.118
										0.961	1	1.665	2	4.996	6	1.805	29.574	
										0.481	0.5	0.833	1	2.498	3	0.902	14.787	
																0.301	4.930	

Nomenclature for units

factor	name	symbol
10^{24}	yotta	Y
10^{21}	zetta	Z
10^{18}	exa	E
10^{15}	peta	P
10^{12}	tera	T
10^{9}	giga	G
10^{6}	mega	M
10^{3}	kilo	k
10^{2}	hecto	h
10^{1}	deka	da
10^{-1}	deci	d
10^{-2}	centi	c
10^{-3}	milli	m
10^{-6}	micro	µ
10^{-9}	nano	n
10^{-12}	pico	p
10^{-15}	femto	f
10^{-18}	atto	a
10^{-21}	zepto	z
10^{-24}	yocto	y

Fuel economy

miles/gallon[1]	km/gallon[2]	km/l	ratio
8	12.9	3.4	1: 3.4
12	19.3	5.1	1: 5.1
25.8	6.8	1: 6.8	
32.2	8.5	1: 8.5	
33.8	8.9	1: 8.9	
38.6	10.2	1:10.2	
45.1	11.9	1:11.9	
51.5	13.6	1:13.6	
56.3	14.9	1:14.9	
57.9	15.3	1:15.3	
64.4	17.0	1:17.0	
70.8	18.7	1:18.7	
77.3	20.4	1:20.4	

[1] USA gallon
[2] Average USA fuel economy (ConsumerAffairs)
*USA fuel economy, planned for 2020 by the US Government
*Current average European fuel economy (Fortune magazine)

Weight

ounce (UK and USA)	pound (UK and USA)	short (USA) hundredweight	long (UK) hundredweight	short ton (USA)	long ton (UK)	stone (UK)	g	kg
1	0.062						28.35	0.028
4	0.250	0.003					113.4	0.113
16	1	0.01	0.009	0.001		0.071	453.59	0.454
1,600	100	1	0.893	0.050	0.045	7.143	45,359.24	45.359
1,792	112	1.12	1	0.056	0.050	8	50,802.346	50.802
32,000	2,000	20	17.857	1	0.893	142.857	907,185	907.185
35,840	2,240	22.4	20	1.120	1	160	1,016,046	1,016.047
224	14	0.140	0.125	0.007	0.006	1	6,350.293	6.350

Area

square inch	square foot	square yard	square rod	square mile	acre	square mile	township	m^2
144	1	0.111	0.004					0.092
	9	1	0.033					0.836
39,204	272.25	30.250	1	0.006				25.292
			160	1	0.002			4,046.856
					640	1	0.028	2,589.988
						36	1	93,239,572

Typography

pica point	pica	didot point	cicero	inches	mm
1	0.083	0.935	0.078	0.014	0.353
12	1	11.215	0.935	0.167	4.233
72	6	67.289	5.604	1.000	25.400

1 pica = 0.9345833 cicero

Length

inch	feet	yard	statute mile	nautical mile	mm	m	km
1	0.083	0.027				25.4	0.025
12	1	0.333				304.8	0.305
36	3	1				914.4	0.914
63,372	5,280	1,760	1	0.869		1,609,340.0	1,609.340	1.609
72,913	6,076	2,025	1.151	1		1,851,999.0	1,851.999	1.852
						1,000	1	0.001

Examples of correct and incorrect Sinetric usage

correct	incorrect	for
km	Km, km., KM, kms, K, k	kilometer
m	M, m.	meter
mm	Mm, mm., MM	millimeter
L or l	L, l.	liter
mL or ml	ML, ML, ml., ml.	milliliter
kg	KG, KG., Kg, Kg., kgr, kgs, kilo	kilogram
g	G, G., g., gr, GR, GRM, grms	gram
µg	mcg	microgram
h	hr, hrs, HR, h., HR., HRS.	hour
s	sec, S, SEC, sec., s., S.	second
cm³	cc	cubic centimeter
km/h	KPH, kph, kmph, km/hr	kilometer/hour
kHz	KHz, KHZ, khz	kilohertz
MHz	MHZ, MHz	megahertz
hPa	HPa, HPa, Hpa, mb	hectopascal
kPa	KPa, KPa	kilopascal
°C	C, deg C, ° C	degree Celsius
K	°K, deg K	kelvin

Architectural and engineering scales

inch-foot scales	inch-foot ratio	metric scale
full Size 1:1		
half size 1:2	1:2	
4" = 1'	1:3	
3" = 1'	1:4	1:5
2" = 1'	1:6	
1 1/2"= 1'	1:8	1:10
1" = 1'	1:12	
3/4" = 1'	1:16	1:20
1/2" = 1'	1:24	1:25
1/4" = 1'	1:48	1:50
1" = 5'	1:60	
1/8" = 1'	1:96	1:100
1" = 10'	1:120	
1/16" = 1'	1:192	1:200

Of all the achievements of the Age of Reason, possibly the most important was the development of a standardized measurement system.

In the western world, before the eighteenth century, systems of measurement varied not just from country to country but from town to town, impeding trade, tax collection and economic development.

This problem was solved by the French Academy of Sciences. They developed a single unit, the meter, theoretically derived from a measurable aspect of the physical world – the circumference of the earth.

They then utilized a decimal system of measurement, based on the number 10, first proposed in 1586 by a Flemish mathematician named Simon Stevin. This allowed the meter to be easily divided, multiplied, etc. to accurately describe the exact length of absolutely anything. Later, other units of measurement were added. These include one for mass, the gram, and another one for capacity, the liter. Today only three countries have yet to adopt the metric system: Liberia, Myanmar and the United States. For residents of these countries, here are a few reasons why now might be the time to move to metric.

1. Minimal units.
The metric system has only one unit of measurement for each quantity. While there are presently 30 distinct units, most are confined to specialized fields. Learning the common units is simple.

2. Goodbye conversions.
Because there is only one unit of measurement for each quantity, you will never again have to convert miles to feet (multiplying by 5280), gallons to ounces (multiplying by 128) or cups to teaspoons (multiplying by 16).

3. No more fractions.
In the metric system, all measurement units are expressed as a multiple of ten.

4. Easy nomenclature.
Expressing these multiples of ten is easy, and a simple set of prefixes does the job. For example, kilo means a multiple of one thousand (1k), mega means a multiple of one million (1M) and giga means a multiple of one billion (1G).

5. Confusion avoidance.
In 1999, one engineering team at NASA used metric units for an important Mars orbiter operation. Another team used English units. The $125 M orbiter was needlessly lost.

6. World harmony.
Ninety-five percent of the people of the world use the metric system. If only the last 5% would adopt this system, then we have finally found one thing on which the whole world can agree.

1 Brand identity design: Translating brand strategy into strong, memorable visual identity programs, including implementation.

2 Media and exhibition design: Developing interpretive programs of historical and nature related subject matter into informative and memorable multisensory experiences.

3 Identity and media design: From the Greek word for "name." A name is the most evident manifestation of a company or brand's overall identity and thus the starting point for any identity program. As such it needs to be clear, concise, memorable, original – and protected.

4 From Fahrenheit into °C: subtract 32 from Fahrenheit number, divide result by 9, multiply outcome by 5.

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